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PHILADELPHIA, JUNE 8, 1878.

ORIGINAL COMMUNICATIONS.

RAPIDITY OF CIRCULATION IN THE ARTERIES.

BY ISAAC OTT, M.D.,
Lecturer on Experimental Physiology, University of Pennsylvania.

PHYSICAL laws can be applied to the study of the movement of the blood, just as in the study of hydrostatics. The physical phenomena of the circulation are, however, much more complicated, because here the conduits, instead of being made of rigid pipes and under the same pressure, are very variable in their elasticity and contractility: the pressure is constantly and rapidly changing. The best explanation of the circulation yet given was by E. H. Weber, who, strange to say, never inserted a manometer-tube into the artery of a living animal. He had, however, studied the wave-movement of water in elastic pipes. The study of the rapidity of the circulation has been the object of many physiological researches. In experimenting on the rapidity of the circulation you can either study the time it takes the blood to make a complete circulatory movement, or the time it takes a particle of blood to traverse a certain distance in a blood-vessel; with the latter I am concerned at present. Volkmann was the first who essayed to study the rapidity of the movement of the blood. The cardinal idea in all these measurements, no matter what the instrument, has been to allow the blood to run through its natural path in the artery, as for example in the carotid, where the blood leaving the heart passes through the apparatus and then on to the head in its usual way. Volkmann constructed a U-shaped tube of glass, called a hæmodromometer,* in width about three millimetres, and in length from six hundred to thirteen hundred millimetres, and then filled it with water. Then, by an arrangement of stop-cocks, the blood flows in a straight line through the apparatus, but on their reversal traverses the U-shaped tube filled with water. He then determined the time it took the blood to pass around the whole tube, and thus easily valued the rapidity. Here the difficulty was that the blood on entering and leaving the instrument was deflected at a right angle in its course, which created considerable unnatural resistance in the path of the blood-current. Then Vierordt improved on this instrument, by inventing an apparatus called the hæmotachometer.† It is a small cube-shaped chamber, having on two sides glass plates running parallel to each other. From the top of the little chamber near the side at which the blood-current enters, is suspended a heavy pendulum playing in front of the quadrant, which is divided into degrees, the pendulum when at rest standing at zero. The two ends of the chamber have hollow conical projections on which the canulas are bound in the artery, the cavity being filled with a few drops of solution of bicarbonate of sodium. Then, when the clips are removed from the artery, the blood rushes into the chamber and carries the pendulum forward in front of the scale, the blood escaping by the exit-tube into the carotid again. Any change in the rapidity would be indicated by the place of the pendulum on the scale, although the pendulum is never quiet, because the pulsations of the heart move it. In this way the pulsations may be counted, or they may be allowed to register themselves on a smoked revolving drum. Chauveau constructed an instrument somewhat on the same plan, which was afterwards modified by Lortet‡ so as to register the rapidity. The pendulum here pierced a rubber membrane fitted into the wall of the tube and projecting by a point in the stream of blood rushing through the tube, which deflected the pen attached, registering the rapidity on a revolving paper. By a side-tube the pressure and the pulsations were registered at the same time, the whole instrument being termed a hæmodromograph. To these instruments another has been added by the fertile genius of Ludwig,§ called in German the "stromuhr." It consists of two glass bulbs opening into each other at one end, and at the other separated by a metal cap which has two tubes running into it, either communicating with either bulb by a change in the turning of the instrument 180°. One bulb is filled with purified olive oil, the other with defibrinated blood. When the instrument is in use, the oil bulb

* Haemodynamik, 1850, Leipzig.

† Die Erscheinungen und Gesetze der Stromgeschwindigkeiten des Blutes, Berlin, 1862.

‡ Recherches sur la Vitesse du Cours du Sang, Paris, 1867.

§ Arbeiten, Leipzig, 1870.

is put in communication with the canula towards the heart, the bulb enclosing the defibrinated blood being fastened in the peripheral end of the carotid. When the oil is pushed over by the stream of blood rushing into its bulb displacing the oil, the instrument is reversed 180°, and then the blood pushes the oil out of the bulb containing the defibrinated blood back to its original bulb. By this means a number of estimates can be made, the experiment being, however, one requiring considerable skill and very beautiful to witness. By means of a side-tube the pressure and the pulsations may be registered. I select from my note-book an experiment on a rabbit. Here the pressure and pulsations were registered on a continuous roll of paper by the mercurial kymographion, and the time the blood-current consumed in filling the oil bulb was registered by an electro-magnetic arrangement, also on the same paper below the heart recording its pressure and beats.

Experiment I.—Rabbit; curarized; artificial respiration kept up; diameter of the carotid one and a half millimetres.

Time in seconds.	Volume of blood in a second, in cc.	Mean rapidity in a second, in mm.	Pulse in 15 seconds.	Pressure.
0–19	0.36	216	64	102
19–39	0.35	205	83	122
39–75	0.19	111		

This experiment demonstrates that the rapidity in the carotid of a rabbit is very variable. The causes of this variation have been sought in changes in the temperature, but this idea is disproved because the changes in rapidity are too quick to correspond to the slower changes of temperature, and when the instrument was kept at a constant temperature by surrounding it with water at a fixed temperature, the same variation in rapidity still appeared. Neither is the variation of the pulse-rate of any import in the changes of rapidity, as they are independent of each other. The blood-pressure would certainly be thought to have an effect, for in hydrodynamics the pressure plays a considerable rôle; but on careful examination no fixed relation could be discovered between the two. Now the question arises, where is the seat of the variation? It must be either in the vaso-motor states of dilatation and contraction of the blood-vessels in different places creating or removing resistance, or the heart must throw out unequal amounts of blood during its systoles. That the heart should eject unequal amounts of blood would be perfectly consistent with the play of the excito-motor ganglia against the inhibitory, for as one obtained temporarily a slight advantage over the others there would be an increase or decrease of the amount of blood ejected. The varying calibre of the arterioles must also be a very important factor, although it is one difficult to measure and then compare with the variation in rapidity of the movement of the blood in the arteries. The experiments on excised organs show that the walls of the blood-vessels have a considerable power in regulating the quantity of the blood and rapidity of the stream, as is shown by the curves with a plethysmograph. Here the central vaso-motor system is completely suspended, and all causes must be referred to the walls of the blood-vessels.

OPIUM-POISONING — ANTAGONISM OF BELLADONNA.

BY WM. I. WILSON,
Assistant-Surgeon, U.S.A.

A RECENT number of the *Times* contained a letter from Dr. Fothergill, on the antagonistic action of various medicines, which article prompts me to give my experience on the now well-recognized antagonistic action of belladonna and opium.

In 1866, when I was in private practice at Macon, Mo., cholera was very prevalent in St. Louis. Of course, in towns having railroad communication with St. Louis every case of diarrhœa was cholera. One evening I was called to see a case of "cholera." On arriving at the patient's house, I found him unconscious and covered over with a copious cold clammy perspiration. Another doctor who had been in previous attendance upon him was sitting by the bedside, administering to him every few minutes a teaspoonful of brandy-and-water. On inquiring into the history of the case, I found that the night before he had indulged in a "big feed" of oysters with the usual accompaniments. During the night he was attacked by violent vomiting and diarrhœa, which his relatives thought was cholera. The doctor when called gave him some morphine, and gave him too much. The pupils of his eyes were closely contracted, and this convinced me that morphine and not cholera was the cause

of his insensible condition. I suggested giving him some fluid extract of belladonna, which we administered to him in four-drop doses every ten minutes. After the third dose the pupils began to dilate, the body to get warm, and the perspiration to disappear. We gave him six doses, twenty-four drops in all, and he became sensible, had no relapse, and next day felt nearly well. His friends looked upon the case as a wonderful recovery from "cholera." The second case occurred when I was stationed at Fort Bayard, New Mexico, in 1873 or 1874. The hospital steward reported to me one day about 3 P.M. that a soldier named Breese had been brought to hospital and was very sick. I immediately went to see him, and found him almost unconscious, unable to speak, and covered over with a cold clammy perspiration. The pupils of the eyes were closely contracted, and the pulse very quick, weak, and hardly perceptible. After having him put to bed and warmly covered, with bottles of hot water placed around him, I gave him an emetic of sulphate of zinc. I made him swallow it by speaking loudly and sharply to him and holding his nose. After waiting for a quarter of an hour and the emetic not having acted, I attempted to use the stomach-pump, but he had just consciousness enough to resist its passage without my using unjustifiable force. I laid it aside and injected hypodermically one-fifth of a grain of sulphate of atropia. An hour afterwards his pulse had become quite full and strong, the skin dry, and the body warm. At 5 P.M. I again injected one-fifth of a grain of sulphate of atropia. His condition was about the same; the pupils had dilated, but the insensibility had increased. At 7 P.M. I requested Dr. Magruder, then a contract surgeon at Fort Bayard, to see him in company with me. We examined him closely, and he was so insensible that I held the candle to and burnt the point of his nose without his feeling any pain. Dr. Magruder said there was no use of doing anything more for him, as he would die before morning,—which was very much my own conviction. We left the hospital together, and I turned back and administered to him hypodermically another injection of atropine. About nine o'clock I went again to see him, looked at his pupils, and thought I detected a slight glimmer of consciousness. There certainly was a change in the expression of his eyes. I on seeing this remarked to the steward, "I've got him," and gave him another injection of atropine, and left the hospital, saying I would return about 1 or 2 A.M., and that if any change for the worse occurred he should let me know. I did not wake till about 4 A.M., when I went over to the hospital and found him sitting up in bed, perfectly conscious and sensible. The man had been drinking pretty freely for a few days previous, and had had access to where some veterinary medicines were stored, among them tincture of opium, though he strongly denied having taken any. The appearance of the pupils and the result of the treatment convinced me that it was a case of opium-poisoning, and the result taught me that, no matter how seemingly desperate a case may appear, one should "never give up the ship."

Another case was that of a child whom I was called to see and found wildly delirious, the pupils widely dilated. On making inquiries as to what it had eaten, I got no satisfactory intelligence. I then gave it an emetic of sulphate of zinc, and when it acted a quantity of green pulp was discharged from the stomach. The parents then remembered that it had been playing with some "gympson" weeds, or stramonium. I gave it several large doses of Dover's powder, which quieted the delirium and induced sleep. Next day the child was well, though the dilatation of the pupils continued for several days after.

These cases fully convinced me that belladonna or plants of the same order—the *Solanaceæ*—are antagonistic to the action of opium, or *vice versa*. Whatever action opium has on the brain, which causes contraction of the pupils, belladonna, which causes wide dilatation of the pupils, should have a contrary effect.

FORT CRAIG, NEW MEXICO, May 5, 1878.

THE NATURE OF HYDROPHOBIA.

BY REINHARD H. WEBER, M.D.

THERE have always been some in our profession who have denied the existence of hydrophobia as a *toxoneurosis*, asserting that this disease is in reality only a *traumatic tetanus*, as Prof. Maschka, in Prague, has done lately. There are others who defend even another opinion, claiming that hydrophobia in the human subject is only a simple neurosis, caused by anxiety,

or fear of becoming rabid, which is well styled lyssophobia. A case that to my mind conclusively settles all these questions may prove interesting to the profession generally:

On March 21, 1878, whilst visiting a patient, I was received by the lady of the house, who told me, without showing any alarm, that her eldest son John, aged 24 years, must have taken a cold, as he had a sore throat and could not swallow. I found a strong young man, without any fever, with a slight redness of his throat, but a profuse secretion of a tough saliva, which he was spitting out every few seconds. He complained about nothing but "rheumatism" in his shoulders and neck, and an inability to swallow any fluids. Upon my question, what he considered the cause of his illness, he replied unhesitatingly that it must be cold, the consequence of working in a cold and damp cellar several days before. Upon my ordering a glass of water he became visibly excited even before the water was brought into the room, and begged me repeatedly not to make him drink, as he knew he could not do so, and was afraid it would choke him. After the water had been handed to him, he touched his lips with the glass, but before any of the fluid could reach his mouth the characteristic tetanic spasms of the muscles of inspiration appeared. The patient's face showed all the signs of great terror and suffering, and the glass was taken away from him. I had seen enough. I now told the patient not to be alarmed, as there was no danger; and upon his asking me what name I gave to his disease, I told him "cerebral rheumatism." I then requested his mother to follow me up-stairs, as I was now going to see his father, sick with rheumatism. On the way I told her that I wished to see her alone, and there put the question to her, "Has your son been bitten by a dog within the last year?" The poor mother became pale, and actually staggered, so that I had to lead her to a chair, and exclaimed, "Oh, doctor, don't ask this question!" After collecting all her strength, she told me that her son had never been bitten by any dog, but that his pet dog had been sick for a whole week, and her son had nursed this sick dog, and put a muzzle on him, and while doing this some of the dog's saliva was running on her son's hand; but she is quite positive that her son was never bitten by the dog; nor does she know of any sore or excoriation on his hands. The dog they had shot that day just eight weeks ago, as they had lost all hope of his recovery, and wished to end his suffering. The family firmly believed all the time that the dog's disease could not have been hydrophobia, as he had been drinking water during his illness without difficulty. All this was confirmed by another son and a daughter, both adults, and of considerable education. They all agreed in their testimony that the patient had never been bitten by the dog.

The true nature of his disease was carefully kept a secret from the patient, but the unfortunate sufferer died within forty-eight hours from the time the first symptoms of hydrophobia had shown themselves.

From the experience of this case, I believe we are entitled to draw the following conclusions. *First*, hydrophobia is not a traumatic tetanus, as there was nothing in this case that could be called a wound. *Secondly*, lyssophobia had nothing to do with this case, as the patient firmly believed that his dog had not had "rabies canina," and moreover as he had not been bitten.

There remains only one explanation, which perfectly agrees with all the facts observed in this case. This rests on the theory that hydrophobia is caused by a specific animal poison entering the system, which, after a long and variable period of incubation, reproduces itself either in the tissues, where inoculation took place, or in the blood, or, as appears most likely to me, in the *salivary glands*. In consequence a *toxoneurosis* is produced, which seems to affect first the cervical spinal cord, causing, by means of the spinal accessory and phrenic nerves, the tetanic spasms of the inspiratory muscles, and, advancing to the points of origin of the pneumogastric and glossopharyngeal nerves, causes death by general paralysis, through the involvement of the medulla oblongata.

The sad case related above will prove the more interesting to the profession as it is, so far as I know, the only case published where in the human subject infection took place without a bite by a rabid animal, the few cases excepted where inoculation took place by wounds during post-mortem examinations of animals that had died of this disease.

854 North Fifth St., Phila.

A Little-Known Property of Quinine.—This, according to the *Gaz. Med. d'Italia*, is that of modifying the condition of suppurating wounds when applied locally. An injection of a solution of quinine (1 : 100 or 1 : 140) is useful in empyema, and also in blennorrhagia and fistulæ of different kinds. A quinine ointment exercises frequently a very decided healing effect upon chronic ulcers. X.

NOTES OF HOSPITAL PRACTICE.

UNIVERSITY HOSPITAL.

SERVICE OF PROF. ASHHURST, MAY 4, 1878.

Reported by JOSEPH J. BISBE, M.D.

HÆMATURIA.

THE first case that I have to show you to-day, gentlemen, is one of a troublesome character as regards both diagnosis and treatment. It is a case of hæmaturia. By this is meant a flow of bloody urine, and this—which is, of course, only a symptom—may arise from several different conditions. Thus, the hæmaturia may be *renal*, resulting from either disease of the kidney, or from an injury, such as a blow producing contusion or laceration of that organ. It thus accompanies some contusions or other injuries of the spine. As an example of renal hæmaturia from disease, may be mentioned that which occurs as a sequel of scarlet fever, or in cases of Bright's disease, and that which results from renal calculus. Bloody urine may also depend upon an injury of the *ureters*, as in cases reported by Mr. Poland, of Guy's Hospital; or it may result from congestion or inflammation of the *bladder*, or from the presence of a calculus or of a morbid growth in that viscus, while it may likewise originate from injury or disease of the *prostate* or of the *urethra*.

Some information as to the source of the blood, in these cases, may be derived by examining the urine. In this instance it is of a florid color, lacking that characteristic "smoky" hue which is usually observed in cases of hæmaturia from diseased kidney, and which results from the prolonged contact and intimate admixture of the blood with the urine. In some cases of renal hæmaturia, however, the blood is found in the form of coagula, and we may then employ the test proposed by Mr. Hilton, of Guy's Hospital, which consists in floating out the clots in a basin of water, when their shape may betray their place of origin, as the pelvis of the kidney, the ureter, etc.

In these cases the urine should always be examined microscopically; and if the kidney be at fault, casts will often be discovered. This man's urine contains some leucocytes, epithelial cells, etc., but no casts, giving us additional reason for believing that his hæmaturia is not of renal origin. He gives no history of injury of the *ureters*, and the question next to be settled is whether or not this bloody urine may come from the *urethra* or the *prostate*. When hæmaturia is the result of any *urethral* lesion, this can generally be traced to some injury, such as a blow on the perineum, the rough use of instruments, violent coitus, etc., and then the flow of blood precedes that of urine. If the patient, under these circumstances, be instructed to pass a part of the urine into one vessel, and the rest into another, it will be found that that passed first contains more blood, while that which follows is comparatively clear, the urethra having been washed out, as it were, in the process of micturition. In the present case the blood is pretty evenly diffused through the urine, and the flow is, if anything, rather increased at the termination of the process,—a circumstance which enables us to discard the notion of *urethral* hemorrhage, and limits us to the bladder and prostate as the possible sources of the bleeding. I have already examined this patient for stone without finding any, but will sound him again in your presence to-day; for, could we discover a calculus, it would be very easy to give him relief. This patient, I should have told you, has a stricture, for which he was operated upon some years ago in a neighboring city, and which I treated by dilatation when he first came into the hospital; though, having found that they increased the hemorrhage, I have not used instruments for some weeks.

In searching for stone, I prefer a slender sound, with quite a small curve: such an instrument can be manipulated more readily than a large one, and is more likely to find a small calculus.

When I introduce my finger into the rectum, the sound being now in the bladder, I find that the patient has piles, which are probably due to straining, and that there is a good deal of fulness between the rectum and the bladder, though not any positively defined tumor. The bladder is ribbed, but I find no stone, and less calculous incrustation than there was when I last examined the patient; I should add that he has passed a good deal of gravel, but not so much latterly as a few weeks ago. The age of this man almost precludes the possibility of the existence of ordinary prostatic hypertrophy, and I am, therefore, by a process of exclusion, led to believe that the source of hemorrhage is

probably a growth involving the anterior portion of the bladder, and that, as there is no glandular implication nor other evidence of cancer, this is most likely of a *villous* or papillomatous character.

It is said that in these cases shreds of tissue are sometimes found in the urine, which can be recognized by the microscope as having been detached from a villous tumor; but such an occurrence is rare, and there is certainly nothing of the kind in this case.

The treatment of hæmaturia varies according to its source. If it is the result of kidney disease, we must administer astringents which will pass off with the urine, such as gallic acid, and place the patient perfectly at rest. Internal treatment does not promise much in cases of vesical hæmaturia. If the blood coagulates in the bladder and causes retention of urine, it may be necessary to employ some form of suction apparatus, such as Clover's bottle for the removal of fragments after lithotrity, but, as a rule, the use of instruments is to be avoided as much as possible in these cases.

We have been giving this patient the infusion of matico, a remedy highly recommended by Sir Henry Thompson; and to-day I purpose making a local application to the bladder, employing that which is preferred by the same writer, viz., a solution of nitrate of silver gr. i to water f℥iv.

The best method of injecting the bladder is to introduce a catheter (a flexible instrument is the best), and then make use of a gum bag, such as I show you here, the nozzle of which is fixed to the end of the catheter by means of a piece of gum-elastic tubing. The solution being placed in the bag, the liquid is slowly pressed into the bladder, and Thompson advises that the quantity injected should be introduced in four portions, three being allowed to escape again, and the fourth retained in the bladder. The injection is somewhat painful, as you see; but it is, I think, the mode of treatment that promises most advantage.

The ultimate prognosis in this case is, of course, not favorable, and all that we can hope to do is to palliate the patient's suffering.

FATTY TUMOR OF SCALP.

The next patient is one who has a small tumor of the scalp. The most common form of growth met with in this locality is the sebaceous cyst, of which you have this winter seen a great many. The operation for the removal of these growths is very seldom attended with any danger,—erysipelas, which was formerly dreaded in these cases, and the fear of which gave Sir Astley Cooper so much anxiety when he removed a sebaceous cyst from the head of George the Fourth, being really seldom met with. The tumor should be removed by making a single incision through the scalp, laying bare the growth which can then usually be turned out with the handle of the knife. In this case the tumor proves to be not a cyst, but a fatty growth, which is of quite rare occurrence in this locality.

In these little operations on the scalp, no ligatures are usually required, because it is so easy to check the hemorrhage by means of pressure; but as this man is not to remain in the hospital, I think it safer to apply a ligature to the vessel which you see bleeding. I will also introduce a single wire suture, which will cause no irritation. As a dressing I apply a piece of lint spread with oxide of zinc ointment, with a firm compress and bandage.

WARTY GROWTH OF FOREHEAD.

The next patient presents a growth of a warty nature on the forehead, and tells me that I removed a similar one from the same situation last fall. I make free incisions on either side, so as to remove the whole growth, with the surrounding skin, and then close the wound with four wire sutures and strips of gauze painted over with collodion, completing the dressing by applying a compress and bandage.

NECROSIS AND CARIES OF TIBIA.

The next patient is a man suffering from necrosis of the tibia. About eight years ago he was under my care for an ulcer of the right leg, with a great deal of thickening about the bone; but at that time there was no evidence of necrosis, the bone being simply enlarged by chronic osteitis. Under the application of a blister, the ulcer healed, but returned a few months ago, and the patient has now necrosis of the outer surface of the tibia.

Within a short time a swelling has appeared on the other leg, which you will probably recognize as a node, and which in this case is, I believe, due to syphilis of the hereditary variety. This condition is a predisposing cause of the patient's bone

disease, though we can also trace a local cause, as the original ulcer followed upon an injury received some years ago.

I will make an incision in the direction of the long axis of the limb, push back the soft tissues with the handle of the knife, and expose the diseased structures. By the use of Esmarch's bandage this operation is rendered bloodless, as you see. A considerable part of this bone is in a state of caries, which bears the same relation to necrosis that ulceration of the soft tissues does to gangrene. I will now, with the cutting pliers, remove a portion of the bone, which will enable me more accurately to determine the extent of the disease. I find the inner part very soft and carious, while the external portion is very hard, and I further find some small sequestra in the interior. I have now thoroughly scraped the cavity with the osteotrite, and have, I think, got down to healthy bone on all sides. Notice how enormously this tibia is enlarged. Its width at this place is over two inches.

The cavity is to be washed out with a syringe and filled with oiled lint, and the wound then dressed with the same material, and covered with oiled silk, with an oakum compress and a bandage.

The Esmarch's tube should not be removed until the whole dressing has been completed.

ST. THOMAS'S HOSPITAL, LONDON.

TWO CASES OF OVARIOTOMY PERFORMED ANTISEPTICALLY.

Reported by JOHN B. ROBERTS, M.D.

SERVICE OF MR. CROFT, SURGEON TO THE HOSPITAL.

CASE I.—The patient, a woman of 42 years, and without children, had noticed abdominal pain and swelling for about one year. The tumor had apparently, from the history, increased with considerable rapidity during a recent period. The girth of the woman over the top of the abdomen was forty-two inches. The operation was performed in a private ward, and every precaution taken to have the instruments and dressings rendered perfectly antiseptic. The instruments were all placed in trays of carbolized water, and returned there when laid aside during any of the stages of the operation. The hands of the operator and assistants, and the abdomen of the patient, were washed in carbolic solutions, and the spray kept going during the whole of the operation by means of a steam atomizer. After the abdomen had been covered with a rubber cloth, in which there was an elliptical opening at the seat of operation, and after the patient was fully influenced by the anæsthetic, an incision about eight inches in length was made in the middle line over the convexity of the tumor, extending downwards from a point above the umbilicus. The abdominal wall contained a great amount of fat, and was at least an inch in thickness. The fluid in the cyst was withdrawn, partly by means of a trocar, and partly by an incision made on the left side with a bistoury. It was viscid, and of a greenish-yellow color. Care was taken to prevent, as far as possible, the ingress of this liquid into the peritoneal sac. The peritoneum was exposed to the action of the atmosphere (although this was well impregnated by the spray) as little as possible by keeping the edges of the wound together whenever there was a cessation of the necessary operative manipulations, and by placing at the same time a large, flat, carbolized sponge upon the opening. The strong adhesions of the cyst were torn, and the sac drawn out through the abdominal incision. Large needles, carrying carbolized catgut ligatures, which were threaded double, were then thrust through the pedicle; and, finally, these were tied tightly, in order to obviate any possible bleeding. The bleeding points remaining where the adhesions had been detached were controlled by ligatures. A small cyst, which was independent of the original one, and which was the size of a walnut, was excised also, lest it should increase and necessitate a farther operation at a later period. Sutures were then used to approximate the incision in the belly wall, which was closed tightly, without any resort to drainage-tubes. The ligatures which secured the pedicle of course rendered a clamp unnecessary. The dressing, of Lister's protective carbolized gauze Mackintosh cloth, was then adjusted. The abdomen was also covered by masses of cotton, and a broad bandage was used to encircle the patient's body. The cyst removed was quite large, and the adhesions to the surrounding parts very firm and old. The utmost care was taken during the operation to keep the seat of manipulation well enveloped in the carbolized spray,

and to use no instruments that had not been lying in the trays of antiseptic solution.

Five days subsequent to the operation it was reported that the wound had been dressed once when there was no suppuration from the incision. The temperature of the patient had shown no elevation above normal that was worth mentioning.

Nine days have elapsed since the cyst was removed, and the patient is still progressing favorably, though the wound gaped after the sutures were removed, on account of the patient's coughing.

SERVICE OF MR. MACCORMAC, SURGEON TO THE HOSPITAL.

Case II.—In this case the woman was aged 56 years. The tumor was not so large as in the former case, and presented fewer obstacles during the operation. A private ward was used, and instead of the carbolized spray the operator preferred an antiseptic solution of thymol, which was placed in the boiler of the atomizer as well as in the tank. This was so arranged because the solution of thymol used was of the strength of one part in a thousand of water, which is said to be the strongest solution that can be made with cold water. A certain amount of additional thymol was placed in the solution in order to insure its being saturated. The steam atomizer was kept in operation for a couple of hours previous to the time of operation, in order that the air of the room might be well impregnated with the antiseptic. The instruments and hands of the surgeon were washed in carbolized water, as in the previous case.

An incision of some six inches was made in the median line, beginning two inches below the umbilicus. The tumor was found to have contracted no adhesions. It was multilocular, and contained in places hard masses. The fluid was drawn off to a great extent when the sac was extruded through the wound. Catgut sutures were employed to secure the pedicle, as in the former case, and great attention was paid to keeping the peritoneum exposed as little as possible by using flat sponges, and by holding the edges of the wound together, except when absolutely necessary to introduce the hands or the instruments. There were no adhesions, and consequently little or no hemorrhage. The sutures were all placed in position, and then tied, after which the wound was dressed similarly to Mr. Croft's case, except that the gauze used was impregnated with thymol instead of with carbolic acid. Thymol has not the irritating local effect of carbolic acid.

A few days later the dressing was changed, without showing evidence of suppuration. After a period of five days the patient was doing well, and had had no marked inflammatory fever. The wound is now (ninth day) healed, and the patient practically over the critical period. She has a temperature about normal, and is really in better condition than before the operation.

TRANSLATIONS.

OPIATES IN CEREBRAL ANÆMIA AND DISEASES OF THE HEART.—Dr. Huchard (*La France Méd.*, 1878, p. 164; from *Jour. de Thérap.*) speaks of the good results obtained by the administration of opium to persons suffering from insufficiency or narrowing of the aortic valves. He gives numerous instances in which the happy effect of this remedy has been manifested. In the course of certain affections of the heart, where the attacks of suffocation and of dyspnœa have acquired an extreme intensity, injections of morphia are of great service. Dr. Huchard's article is valuable as popularizing the use of opium in diseases of the heart, and also in putting forth a theory to explain the good effects observed in its use. Opium has long been used in these diseases, but the value of Dr. Huchard's communication lies in the fact that it shows more precisely the indications and counter-indications.

It is known that opium, given in the dose of one to two centigrammes (gr. ⅙–⅓), produces slight excitement of the circulation, animation of mind, and increase of muscular force; if the dose is pushed to five or ten centigrammes, depression of the circulation, with a tendency to sleep, is brought about. M. Gubler, in his *Commentaires*, urges the utility of opium in want of stimulation of the nervous centres by an impoverished or altered blood; and Dr. Vibert suggested a year or so ago that injections of morphia should be practised previously to the operation of thoracentesis, and even in every operation where there might be danger of syncope, with a view to prevent its occurrence. It is for the same reason—to utilize the "hyperhemiant" properties of opium on the ner-

vous centres—that Dr. Huchard has employed this drug. In cases of narrowing or insufficiency of the aortic orifice, where patients present the symptoms of asystole, with suffocation, dyspnœa, cold sweats, paleness of the face, algor of the extremities, etc., Dr. H. has seen all these symptoms diminish after the hypodermic injection of one centigramme (⅙ gr.) of morphia. M. Huchard generalizes by saying that if opium is useful in aortic affections accompanied by vertigo, tinnitus aurium, tendency to deafness, cephalalgia, and occasionally dilatation of the pupil, it is because it overcomes the cerebral ischæmia. For this reason opium may be used as a tonic in many anæmic conditions, as phthisis. X.

Sarcoma of the Palm of the Hand.—At a recent meeting of the Société de Chirurgie (*La France Méd.*, 1878, p. 253), M. Tillaux read a communication from Dr. Gross, of Nancy, giving an account of a peculiar growth which he had recently removed from the palm of the hand. Tumors of the palm are rare. Lipomata, enchondromata, and little cysts developed along the course of the synovial bursæ are sometimes found, but sarcomata, particularly those containing, as in the present case, giant cells, are in the highest degree uncommon in this locality, and have usually been found only in connection with bone. Here the tumor was developed in the subcutaneous cellular-adipose tissue. The patient, a girl of 17, showed a tumor at the root of the right index finger, occupying the place of the adipose cushion usually situated there; it extended thence to the thenar eminence and the palm of the hand, forming a lower subcutaneous lobe and an upper lobe somewhat flattened by the aponeurosis. The tumor was indolent, movable, and did not adhere to the deeper tissues. M. Gross hesitated in his diagnosis between lipoma and sarcoma. Microscopic examination of a bit of the tumor showed the presence of the latter. The tumor was removed by enucleation. Four or five days later an isolated process was observed in the wound, which gave rise to fears of a return of the disease. This was destroyed by caustic, and subsequently returned twice, finally disappearing entirely under the use of Canquoin's paste.

In the discussion which followed, M. Verneuil said he had long warned his pupils against the danger run in enucleating so-called "benign" tumors. Frequently the examination of a rounded, encysted fibro-plastic tumor would show a sort of serous sac about the periphery, a very loose cellular tissue. Enucleation is easily effected, but on examination of the cyst which surrounds the tumor it is found to be composed entirely of fibro-plastic elements. In these cases local relapses of the most stubborn character are to be feared. M. Verneuil was accustomed in such cases, as in fibromata of the mamma, so often mistaken for adenomata, to remove the whole cellular "atmosphere" about the tumor, going into the healthy tissue beyond the suspected zone. M. Despres said he thought the growth in M. Gross's case was connected with the bone. In reply to M. Verneuil, M. Tillaux said that in a structure like the palm of the hand, one could not go far beyond the limit of the tumor without involving important structures. He was positive that the tumor was not connected with the bone. X.

Poisoning by Digitalis—Recovery.—In *La France Méd.* of April 13, Dr. Béringuier narrates the following case, which is of interest because it is seldom that the ingestion of so large an amount of digitalis has not been followed by death:

A woman 28 years of age took fourteen milligrammes of digitaline in one day, and sixty the day following. She lost consciousness almost immediately after the ingestion of the second amount, and was brought to the hospital. Her expression at this time was much changed; her face was pale and covered with sweat; she did not seem to hear what was going on around her, and her strength was exhausted so that she was supported on either side by persons who assisted her to walk into the ward. She gave utterance to cries of agony on account of violent pains in the head and stomach. On her arrival in the ward she began to vomit, straining violently, and throwing up an abundance of bilious matter. She complained of violent pains in the head, with tinnitus aurium. From time to time her vision seemed obscured, at other times she suffered from vertigo. The pupils were equal and slightly dilated. Pulse feeble (forty beats in the minute), but regular. A somewhat harsh apex systolic murmur. An emetic was prescribed, and also a pint of infusion of coffee. During the following evening and night,

the patient suffered from attacks of vomiting, with violent pain. A large quantity of fluid was rejected. She did not sleep at all. The feet and hands were pale and were the seat of tickling crawling sensations. Headache and disturbance of vision and hearing continued, the pulse was the same, the epigastrium was extremely tender, and the patient complained of atrocious burning in the stomach. Only a few drops of urine had been passed since noon.

The next day the patient's condition was the same, or worse. She was weaker, vomiting was constant, there was tenderness along the spinal column. The hands and feet were cold; formication continued in all the limbs. The patient had just begun to menstruate when she took the digitaline; the flow stopped at once. Headache, vertigo, tinnitus aurium, disturbance of vision, continued through the day. Temperature in the axilla, 98.5° F. She passed one hundred and fifty to two hundred grammes of urine. This threw down an abundant deposit of urates, but contained no sugar and no albumen. In the evening she felt better, and all the symptoms had diminished. On the third day the patient was still very feeble; the vomiting continued; there was some diarrhœa. Pulse fifty, temperature 97.1° F. She took some coffee, and had a hypodermic injection of morphia. In the evening decidedly better, and slept. She still had a little diarrhœa, and her urine continued scanty for some days. Seven days after taking the digitaline the pulse remained at forty-four; and it was not until the ninth day that it recovered its usual force and fulness (sixty pulsations per minute). The patient's menstrual discharge returned again with her recovery. In commenting upon the case, Dr. Béringuier attributes the patient's recovery to her having vomited the very large dose which she had taken. Contrary to Legroux's experience, no elevation of temperature took place. As is usual in digitalis-poisoning, suppression of the urine to a high degree was observed. It should be noted that the patient's pupils were always perfectly contractile and only moderately dilated, and that pain along the vertebral column, a symptom noted by Tardieu, but not often referred to by writers, was present to a marked degree. x.

Poisoning by Atropia treated by Alcohol.—Famberlini (*La France Méd.*, 1878, p. 223; from *Gaz. Med. Ital.*) gives the case of a woman recently operated upon for cataract, in whose eye solution of atropia 1 : 400 was instilled for prolapse of the iris. After eight days of this treatment the patient one day became suddenly very pale, her countenance altered, she had a chill, pharyngeal contraction, salivation, delirium, with the pupil of the *opposite* side excessively dilated. Famberlini immediately administered two hundred and fifty grammes (8 oz.) of alcohol. A little later the temperature, which had been 98° F., rose to 100° F., and all the alarming symptoms disappeared. In other cases of poisoning following the instillation of a few drops of atropia solution, the result has been attributed to some pre-existing renal lesion which did not allow the elimination of the poison. x.

After-Treatment of Tracheotomy Cases.—Vogt (*Cbl. f. Chir.*, 1878, p. 158; from *Deutsche Med. Wochens.*), proceeding from the fact that with the present methods of treating tracheal croup most children perish, even after operation, from continued formation of false membrane, suggests glycerin as a means of hindering the formation of the membrane. It is known that when this substance is applied to the mucous membrane a profuse watery serous secretion is excited; and this is relied upon by Vogt to remove or prevent the adhesion of the false membrane. In the case of a little six-year-old girl treated in this way a cure resulted. Glycerin mixed with an equal quantity of water was inhaled, by means of an inhalation apparatus connected with the tracheal tube, every half-hour. Vogt has also used this treatment in recent cases of croup, where tracheotomy has been thought unnecessary or unadvisable. Disinfection of the original patch in the pharynx by means of chlorine- or bromine-water preceded the use of inhalation. x.

Boracic Acid in Skin Diseases.—Neumann (*Centralbl. f. Chir.*, No. 8, 1878) has employed boracic acid, sometimes alone, sometimes in connection with oil of cloves, in the fluid form and in ointments. In pityriasis versicolor and tinea tonsurans, alcoholic solutions, 10 : 300 with 2.50 ol. caryophylli, and 20 : 300 with 3.0 ol. caryophylli, have been used. In pityriasis rubra and all varieties of eczema the acid has been employed in the form of ointments of 10 : 50. Neumann considers the remedy a valuable one. x.

PHILADELPHIA
MEDICAL TIMES.

PHILADELPHIA, JUNE 8, 1878.

EDITORIAL.

THE JOHNS HOPKINS HOSPITAL.

IN a recent editorial we had something to say concerning the present state of the Johns Hopkins trust. Because it is a trust for all humanity, we feel justified in returning to it. If the trust were for Baltimore and Maryland alone, that would be much; if for education and for the medical profession everywhere, that would be more. But, most of all, it is a charity that is world-wide. It was intended not merely to honor Baltimore, but to furnish a model for such charities everywhere, and to train a class of helpers for all society.

To illustrate this we need only to turn to three clauses in that remarkable will, part of which Mr. Hopkins had hoped to see executed in his lifetime. He directs his trustees "to obtain the advice and assistance of those at home and abroad who have achieved the greatest success in the construction and management of hospitals." But it was not only for a hospital. "In all arrangements in relation to this hospital, you will bear constantly in mind that it is my wish and purpose that the institution shall ultimately form a part of the medical school of that university for which I have made ample provision by my will." When he comes to speak of the training-school for female nurses in connection with the hospital, he puts still more definitely the outreach of his design, which is not only "to secure the services of women competent to care for the sick in the hospital wards," but to "enable you to benefit the whole community by supplying it with a class of trained and experienced nurses."

In the university, in the hospital, in the medical school, in the nurse school, in the orphanage, he attempts not only a charity for inmates or an education for attendants, but a great normal school for all the world, —a model and an influence which shall permeate and penetrate wherever men are to be cared for or orphanage prevented or relieved. Well does Mr. King, in his letter to the first essayists, call it "a munificent foundation." The trustees seem to have measured the scope and imbibed the spirit of the bequest, and hence is the history of their administration worthy the space we give it.

The first essays on hospital construction and organization secured by the trustees from representative men of the medical profession were published, as they say, for the "whole public." These drew forth many reviews which aided in a fair expression of opinions on all matters relating to hospital construction, and to the choice of Surgeon Billings of the army to study in detail the various plans proposed and to submit to the trustees his views as to the buildings to be erected. Dr. Billings himself brought to the subject a knowledge second to that of no living American, and yet an openness to conviction which led him to study and examine the subject as a an expert, seeking from every direction the best information still to be had. About a year after the publication of the book on Hospital Construction and Organization, and after he and the architect had fully considered all suggestions made, Circular No. 1, July, 1876, in a few pages further discussed plans which had been submitted.

It had then been settled that the hospital should have a large open central space, and that so far as any memorial or ornamental effect should be elaborated it would be confined to the administration building; that the structure should be of brick,—all south ends of wards fully exposed to air and light and clear of adjacent buildings; that connections should be made by corridors with level floors above the

ground surface, and their tops even with the floor levels of the wards.

In September, 1876, a second report was made, with sketch plans of the suggested hospital. As these plans have been somewhat extensively known, they need no long discussion here. Suffice it to say that they presented a large idea of a perfected hospital with the most approved appliances. Not only the wards and their connections, but the amphitheatres, the operating and dissecting rooms, the pathological laboratory, the microscope room, a room for photomicrography, a photographers' room, with balcony for scientific illustration, a museum, etc., were duly provided for.

The subjects of heating and ventilation were presented and discussed. The plans submitted were drawn on the supposition that the hospital is to be heated by hot water, at a temperature of less than 200° Fahr., circulating in coils of cast-iron pipe placed in the basement, beneath the rooms to be warmed. Over the surfaces of these coils the fresh air passes before it enters the rooms, thus forming what is known as the method of heating by indirect radiation. The water is heated in the kitchen building, and the aspirating chimney into which the flues enter has at its base the foul-air duct which receives the foul air direct from the wards, and thus aspirates their air. The advantages and disadvantages of the plan of ventilation are discussed. If the plan of a single aspirating shaft is not adopted, the value of natural and ridge ventilation and of central fireplaces is presented; also the application of the fan to either method, both for aspiration and for impulsion, is suggested. The paper ends with the statement that these remarks are intended to indicate points which have not reached decision, and which are open for study and inquiry.

A few days after, with a full supply of well-executed plans, and with his papers of details, Dr. Billings started on a tour of inspection across the Atlantic. An extended and laborious examination was made not only of the hospitals of Great Britain and the Continent, but also of the systems of heating and ventilating which had been tried in the leading public buildings of London, Paris, Berlin, Vienna, etc. We have means of knowing from an outside source some of the scientific incidents of this journey, enough to show that the search for truth was earnest and skilled. Approvals and criticisms were listened to and noted with great exactness, and observations made with the most technic care. Hospitals heated so as to be cold and ventilated so that the draught was downward, and ducts and pipes unknown to the foremen, were among the incidents. On the other hand, here and there a master-spirit was found and important facts were elicited. We know a looker-on who enjoyed the scientific catechisings as much as some now relish the Shorter Catechism of Westminster.

Extended thought, study, and observation led to the suggestions which are made in a circular of January, 1877. This third report gives a careful review of the various suggestions which had been received, and either disposes of them by facts and arguments, or shows wherein they are valuable. Much attention is again given to the discussion of the system of heating and ventilation. The great trouble abroad as well as here is to secure reliable data; yet the opinions and experience of some skilled superintendents were found valuable. In ventilation, systems of aspiration, such as the usual chimneys, were mostly preferred to the fan or other methods of impulsion. Few, however, advised for such a hospital as this a single large aspirating chimney, as had been recommended by the first architect. The fan system is used to advantage at the Grand Opera House in Vienna, but, though found in several other places, seemed unwieldy and not very available. It was quite evident that the fan system has not been well tested abroad.

The weight of authority seemed to be in favor both of the separate heating and ventilation of each ward building. In the circular, Dr. Billings recommends that "this hospital shall be heated with hot-water coils placed in the basements of the several buildings, and supplied from boilers placed in the basement of the kitchen building." For the ventilation of each ward, in addition to valved ridge openings, an aspirating chimney which shall rise thirty feet above the level of the ward ceiling, and into which open longitudinal ducts running beneath the centre of the floors of the ward, is advised. Two double fire-places in the centre of the ward will give similar aspiration, but not much heat. A steam coil or a fire at the base is suggested as securing the aspiration where such chimneys are used for each ward. As fine organic dust rather than gas is the danger of a hospital ward during cold weather, both the distribution of air and its removal are best secured by taking the outgoing air nearly from the floor-level.

Dr. Billings, after this careful review, advises the adoption of the plans for the hospital chiefly as presented in the former sketches, with such slight modifications as will hereafter appear.

Paper No. 4, dated December 31, 1877, by the building committee of the Johns Hopkins Hospital, says, "After careful examination of the sketch-plans submitted with the report of Dr. J. S. Billings, dated September 20, 1876, and of the various criticisms and comments upon them, made by those most interested in and familiar with the subject of hospital construction, both in the United States and abroad, fresh plans were prepared, including such modifications as seemed desirable." These were approved April 17, 1877. They at once proceeded to a preparation of the ground for building. This very properly included a study of its geology, its topography, and its relations to the city. As Baltimore has no sewerage properly so called, and as the facilities for conducting the drainage of this ground to a near point for final disposal are not good, the drainage became of the first import. Careful borings were had of the grounds to the depth of over sixty feet. The soil was found composed mostly of alternate layers of sand and stiff clays, with two springs and several marshy places on the ground through which the soakage from the various strata came. The main drainage through an elaborate system of pipe is conducted to where a sixteen-inch main drain enters a large silt trap, the horizontal section of which has the shape of a quarter of a circle, the radii being formed by the heavy walls built to act as foundations for walls to be hereafter constructed. The bottom of the silt trap is at the level of 75′ 9″ above tide, and the sixteen-inch pipe enters it three feet nine inches above the level, that is, 79′ 6″ above mean tide. This drainage is, with one exception, the entire drainage of the hospital, but has nothing to do with the sewerage or water-closet system. The one exception is at a point where there is a spring so far distant as to require a very long drain, and so a well five feet in diameter was sunk fifty-five feet from the spring to the depth of fifty-eight feet, where a bed of coarse gravel was struck. The water from the spring and from some other small veins was turned into this well, and through it rapidly conveyed away. After the heaviest rain the water in the gravel pit has not risen over eleven feet, and in three days then subsided to five feet. As at the depth of from sixty to eighty feet this gravel bed underlies the whole hospital, much of the sewage of the hospital might, if needful, be disposed of in this way. With care as to fatty matters, and with rainfalls kept out by the drains, it would be a long time before such wells would fill up and become useless. (See report.) Details are then stated as to the usual foundations which are completed.

Paper No. 5, of February, 1878, is by

Dr. Billings, and gives a detailed plan for the heating and ventilation of the hospital. The whole is a thorough discussion and a valuable contribution to the general literature of the subject. After referring to methods of flushing the wards with fresh air at times, and to organic impurities as more contaminating than carbonic acid, he emphasizes the fact that "carbonic acid is equally diffused throughout the room, does not collect near the floor, and the fact of its specific gravity being greater than that of air at the same temperature has nothing whatever to do with questions of *ventilation in a hospital.*"

The standards of purity and quantity of fresh air required are then discussed. The standard of De Chaumont is approved, viz., that the purity be such that a person entering from the fresh outer air shall find no perceptible odor; and this is found to be when the amount of carbonic acid does not exceed six parts in one thousand, which means three thousand cubic feet of fresh air must be introduced and distributed each hour for each man. The effect of moisture on air is ably discussed, as well as the views of De Chaumont and Robert Briggs's pamphlet, which we have read with great interest. We think that the conclusion is correct that instead of 60° we must have here 70° as the usual temperature; but whether this is owing to the greater dryness of our atmosphere is not fully determined. As to the supply and distribution of air, three points are made. 1st. The velocity of the incoming air should not exceed two feet per second. 2d. The openings for ingress of air should be numerous and scattered in order to secure rapid distribution. 3d. It should be remembered that air has a strong tendency to adhere to surfaces across which it passes. Registers in the walls are preferred for hospitals. Morin insists that registers should be near the ceiling, and Huxley claims that the inlet of the warm air should be from above. Warm air, however, introduced anywhere on the side walls tends by this surface adhesion to run up to the ceiling, and so travel down as if introduced above, unless the opening is too near the floor. In all cases there should be some way of admitting to the heated air some cold air which has not passed over the heating surfaces, and so regulating temperature.

The chief points as to foul-air registers are these. Their area should about equal that of the fresh-air openings. They should not, when it can be avoided, be in the external walls. The openings should be free spaces, and thus avoid that friction of surfaces which impedes if there is too much ornamental work. An ordinary open fireplace and chimney, even without a fire in it, is the best of all foul-air systems in a room heated by the introduction of warm air or indirect radiation. In one-story wards, ridge ventilation and an arched ceiling are advised. The system in the lowest ward should be an iron foul-air box in the centre of the floor, just below it, to which foul-air pipes come, and which connects with an aspirating chimney. The water-closets, sinks, etc., are arranged around special ventilating shafts heated by high-pressure steam coils.

As connected with the supply and distribution of air, the subject of heating is fully treated. Shall dependence be placed on air entering the rooms after having passed over heated surfaces outside, or shall the cool air be heated in the room, or shall both methods be combined? We might also inquire whether the floors and walls could not be so warmed by apparatus outside that but little heat would need to be brought into or produced in the ward. One objection to heat from outside or by indirect radiation alone is that the head will be kept warmer than the feet. A combination of the two systems is advocated.

Preference is given to hot water over steam, although both are admitted to be equally applicable to many rooms. We have examined the hot-water apparatus in

Barnes Hospital, and it certainly works well and with reasonable economy. The wards have registers both near the floor and near the ceiling, but in practice almost entire dependence is placed upon the former. The description of the heating and ventilating of this hospital, as given by Dr. Huntington, is a valuable part of Dr. Billings's paper. Many experiments have been conducted in the Barnes Hospital, as to the movements of air, the direction of currents, the variations of heat and moisture, the quality of the foul air, and the perfection of its removal. Thus Dr. Billings and Dr. Huntington are able to give us some reliable statistics, although it must be admitted that the hospital is one almost as easily regulated as a private dwelling. It affords, however, an excellent opportunity to compare, as has been done, (*a*) ventilation by perflation or the natural method, (*b*) ventilation by aspiration, (*c*) by propulsion, and (*d*) by a combination of two or of all these methods. The aspirating chimneys are not as huge as some to be seen abroad, but work well; and as for the fan, it is in construction far ahead, we believe, of anything to be found in Europe. With the different methods at command, and, most of all, an observing superintendent to work them, we confess that we are far less disturbed than before with what are called the unsolved problems of ventilation. The records of observations as to weather, temperature, humidity, velocity of currents, movements in fresh- and foul-air ducts, amounts of carbonic acid gas and of organic impurities, etc., in the wards, the amount of coal consumed, etc., afford us statistics of the greatest value, if followed up with similar trials elsewhere. Dr. Cowles's observations in the Boston City Hospital, and those of Drs. Wood and Mew, are of like value. Here again comes in the utility which the Johns Hopkins Hospital seeks to demonstrate for the world at large. It proposes not only to apply the best known methods, but to try different methods in different buildings, and to seek by observation and comparison to get such results as will aid science and experience everywhere. "It will be," says Dr. Billings, "a sort of laboratory of heating and ventilation." His partiality for the propelling fan is quite evident, but not to entire dependence thereupon. It is also very available in summer, and in such a climate as Baltimore it will be needed for this summer ventilation. The plan of ducts is fully as important as the kind of fan. Physics has furnished us with laws so that now we are quite able to calculate the size of pipe, the curves or angles, and the friction of surfaces.

The administration building will be heated by hot water, low temperature. The dispensary, amphitheatre, and bath-houses will be heated by steam, low pressure. The laundry and pathological building will each have their own separate heating apparatus.

The ventilation of each building will be effected under ordinary circumstances by open fire-places, aspirating chimneys, or ridge ventilators, and the ventilation of each building will be entirely separate from all the others. For accelerating ventilation, high-pressure steam coils are to be used in the aspirating shafts or boxes, and a fan ten feet in diameter, with suitable ducts, is to be provided. The pay wards will be heated partly by direct and partly by indirect radiation, fire-places being relied on for the former. The common wards have their apparatus for heating and ventilating in the basement. The coils for the heated air stand between each pair of windows, and the heating is as before described. Fresh cool air can be admitted either through or alongside of the heating coil.

Direct radiation in the wards is proposed by double open fire-places in the centre of the ward; and it may be worth while to try in these fire-places the substitution of a steam coil with reflectors for the open fire. The foul-air duct runs longitudinally be-

neath the floor of the ward, and receives the air from lateral ducts opening at the foot of each bed. These can be reached from the basement or thoroughly cleansed throughout. Two or three different plans or combinations and sketches of plans are given.

The Nurse Home will mainly depend on heating coils placed in the basement. In the centre of the building is a brick shaft of six feet interior diameter, which acts as a ventilator and secures an aspirator which can be used according to indications.

We have been thus minute in the notice of this hospital just because it has such universality of interests. It is local only that it may be cosmopolitan. We confess to interest in the thing itself, but even more in its "Normal" relations as a teacher and a model, to be studied, improved, praised, found fault with, criticised according to the lights and the shades which real scientific facts, close observation, and reliable aggregates of experience may furnish. It is because it is conceived and executed in this spirit that we shall ever watch it with the highest interest. It is a compliment to the medical profession that Dr. Billings is allowed not only to guide as to its general hygiene, but to have all the influence of a medical and sanitary authority in questions of engineering, architecture, etc. Although these are finally committed to experts in these professions, it is only after the strictest and most decorous consideration of all sanitary facts and bearings. We congratulate the profession even more than we do the individuals, that, whatever may be the success of this uprising structure, it will be the first university indication of acknowledged allegiance to sanitary and medical science; an organized attempt to apply or test the best ascertained or probable indications of science to the laws of structure and arrangement. The architect, the engineer, and the medical sanitarian shake hands in the presence of a favoring board of trustees, and an interested medical, charitable, and university constituency are watching with great interest the results. We congratulate all concerned on the mode of investigation and the plan of execution thus far, and hope to realize our hopes for the future.

CORRESPONDENCE.

LONDON LETTER.

IT may not be familiar to all your readers that amidst the other mappings-out of Old England, it is divided into a series of areas, over each of which presides a medical man, known as the medical officer of health for such and such a district. This officer is possessed of very considerable powers, has a fairly respectable income, a good social position, and a staff of inferiors under him. His power is considerable, and his office an important one. For instance, if an outbreak of typhoid fever or diphtheria occur in his district it is reported to him, and he at once appears on the scene, investigates the causes of the outbreak, if possible finds them and does away with them if they are remediable, and places the affected area under the most favorable circumstances for the amendment of the sick and the protection of the unaffected around them. It is needless to say that very often the measures he orders are unacceptable to the people whom he wishes to serve, and that the ingratitude said to belong largely to humanity procures for him the reputation of a meddlesome fellow, who does not indeed not mind his own business, but who makes a great deal his business which does not properly belong to him. Then, again, somebody does something or makes something pecuniarily profitable but obnoxious or deleterious to his neighbors. Here again the medical officer of health is invoked to see that the nuisance is removed. The Anglo-Saxon race is famous for its fixity of purpose and the determination it exhibits in the pursuit of its aims, and persons so interfered with bear no good will to this sanitary guardian. In contemplation of such consequences of the discharge of duty, his office is settled by the local government board, and his livelihood and means are not absolutely at the control of the local men in office, who would in all probability revenge upon him the wrongs and injuries of their friends whose vested interests he may in the course of his duty have injured. He is indeed a gentleman filling a confessedly difficult post, and he is fairly paid, and is as well supported by his board of health as may be expected from humanity in its present state of development and enlightenment. But every now and again it becomes his duty to close some time-honored well at which the forefathers of the villagers have drunk with

asserted benefit for centuries, and to discover impurities, nitrites, etc., in a water reputed for ages as of superior excellence and of miraculous qualities, and then he is the subject of a good deal of odium and abuse, and his qualifications for his office are usually freely criticised. But the strangest offence that such an officer could commit came under my notice lately in the suburbs of Manchester. I met at dinner the medical officer of health of an adjoining district, and also a member of the board of health of the district in which our host's dwelling was placed. It soon became apparent that there was an old standing feud established in this neighborhood, based on the small death-rate of the medical officer's district as compared to that of the neighboring areas, over one of which this other gentleman was one of the reigning powers. They speedily came into collision on the disputed topic, and it was very amusing to hear the doctor assert how he had kept down, as far as possible, the numbers of the population in his area, so as to make the death-rate as large as possible, and, do all he could, he could not reach a higher death-rate than 6.5 per thousand,—a rate about one-third of the usual rate over all England. Instead of a general rush to an area so favorable to health, and consequently to longevity, as one might expect, this low death-rate had excited the suspicions and not the jealousy of the neighboring districts. Why they should be keeping up the ordinary and normal death-rate while this isolated area was so free from death, was a problem admitting of only two solutions, —viz., either that it was a fact, in which case the medical officer of health was entitled to the greatest possible credit, or else there was some trickery practised. Instead of generously crediting the doctor with unusual zeal and unparalleled success in his efforts, it appears they felt inclined to suspect him. So they sent detective police officers into his district to see if any deaths were concealed from the authorities and so were not registered. It appears, however, that the doctor came out of this very searching crucial test with flying colors, and that the neighboring boards are striving to conceal their chagrin at their ill success in not finding some other explanation of a death-rate of 6.5 per thousand than the obvious one of a small mortality. The disputants seemed to agree fairly well in their disagreement, and remained quite friendly over this inexplicable affair; but how the doctor made out that he had kept his population down (without killing them), and how he had manipulated his death-rate in order to bring it up to 6.5, I am not now quite clear; indeed, at the time it seemed something mysterious. But to have detective officers sent to hunt up unreported and unregistered deaths as the reward of strict attention to duty and of an unwonted success seemed to me somewhat hard. It seemed clear, however, that if the death-rate of this isolated district rebelliously remained at such an insufferably low position, it would not be long before the experiment would be tried of getting in another officer of health at the first opportunity that offers itself, and thus seeing if the secret cannot be discovered.

At the annual conversazione of the Medical Society the oration was delivered by Dr. Alfred Carpenter, on "Alcoholic Drinks, as Diet, as Medicines, and as Poisons." He eloquently defended the bulk of the profession from the charge brought against them of being the cause of the prevalent taste for alcohol. He admitted that unfortunately some routine practitioners were given to injudicious recommendation of them, and that consequently the whole profession had been freely blamed for what was the fault of but a small section of it. As to the statement that animals did not take alcohol, he said neither did they cook their food nor use artificial coverings, though they manifested no objection to either cooked food or coverings when provided for them by man. He then considered the question of the probability of alcohol being changed into glycol, one of the saccharine group, in the body, and so being transformed into force in the human economy under certain circumstances. We were not to assume that because a large dose did harm, therefore a little one was injurious. Lime and salt are even necessaries of life, and yet they were injurious in large doses. A toleration of alcohol was created by the use of it. As to its use in medicine, he thought that its administration to the weak and debilitated, and especially those who had suffered from hemorrhage or long-continued suffering, might occasionally lead to the formation of embolism, from its effects upon the blood. He thought the growing custom of diluting wines with saline waters a beneficial and desirable one. It was also well to take alcohol with food, and not alone. If two men take the same quantity of liquor in the course of a month, the one taking it with food, the other on an empty stomach, the latter becomes rapidly saturated, the former escapes without serious damage.

"If stimulants are taken with other food when great exertions are being made, and when there is a call upon the stomach for fuel to supply waste of tissues, there is sufficient evidence to show that they enable the machine to obey that call with better effect than if stimulants were withheld; but if the effort is continued from day to day beyond the ordinary capacity of the machine, and that effort is sustained by more fuel in the shape of stimulant, the human machine, like all others, must wear out sooner than it would otherwise do." He continued, "We may fairly assume that there are occasions in which stimulants may be useful, and even necessary; but as habitual drinks they must be hurtful unless more diluted than we are accustomed to take

them, and it appears that it is our duty as medical advisers to state this fact forcibly to those consulting us, and to advise their non-use in daily life. As medicines, he said, alcoholic drinks, sufficiently diluted, promote the secretion of gastric juice by bringing a flush of blood to the gastric capillaries, but in dyspeptics this might be followed by a defective secretion next day. In concentrated form alcohol destroyed the power of digestion by its injurious action on the stomach. The readiness with which alcohol is absorbed, and its diffusive power, enable it to reach various parts of the body in an extremely short space of time, and so to work changes there. The injury done by alcohol is much greater if it contains amylic alcohol and fusel oil, which are always present in potato spirit and the spirit with which wine is fortified. They make the fluid pleasanter to the taste, and even give it a "bouquet," but their effects are far more serious and more immediate than those which follow from the simple use of ethylic alcohol. It was not certain whether the congestion produced by alcohol was produced by an immediate action on the tissue of the capillary, or whether the first effect is on the nerve-centre, or whether the effect on the nerve-centre may not accrue as well as a local effect be produced by vaso-motor paralysis. He said he rarely met with acute neuralgia in the total abstainer, while hysteria is in a great measure absent from those whose ancestors have been perfectly temperate people. Alcohol or other neurotics often gave immediate relief, but only to cause further ultimate mischief. Many forms of so-called rheumatism had an alcoholic origin. Here a cure is only to be obtained by cutting off the alcohol. As to the dipsomaniac, the first step in treating him is to cut off his drink and restore his digestive power,—the latter often being difficult of attainment. The deposits which were laid down in the glandular system and other tissues were to be removed as far as possible. It was only by long-continued self-denial that the cure could be completed. The immediate effect of alcohol is to dilate the capillaries of the nerve-centres to three or four times their ordinary dimensions, and so to flood the brain with blood. Atrophic degeneration was, however, the ultimate outcome of this artificially produced vascularity. The hallucinations and delusions which accompany excess of alcohol are associated with capillary dilatation, and as a sequence there is pressure on nerve-substance which cannot be repeatedly renewed without the risk of subsequent atrophy or degeneration of one or other part of the affected tissue. No wonder, then, if the cure required time. He then referred to the frequency of sunstroke in those who indulge in alcohol to excess. As to the therapeutic use of alcohol in fever, the cases which required it were those where there were a dry tongue and skin with no sickness and no indication of a cerebro-spinal lesion. Alcohol here produces a lessened temperature, a slower pulse, a moister tongue, and a quieter condition generally. Another temporary condition benefited by alcohol is that where the surface has been chilled and internal congestion produced, for alcohol dilates the cutaneous capillaries and so permits the blood to flow again in its wonted channels. From its effects upon the capillaries and upon the heart itself it might be given with advantage in cases of shock, and in prostration produced by acute disease. For the same reason alcohol is useful to certain persons even in comparative health, that is, where the powers are waning and the heart fails to transmit blood in sufficient quantity to the extremities of the body, and the aged person readily feels cold. A moderate dose of alcohol taken with food is beneficial in these cases.

As to its evil effects, he said, work which is kept going by continuous doses of alcohol always ends in a break-down. If it is taken for the purpose of increasing muscular exertion, ultimately there is great loss of muscular power, as all athletes know. If mental exertions are kept going by alcohol, there is a mental break-down, as the lunatic asylums testify. The evidence of various campaigns proves that alcohol is not an advantage, but rather otherwise, in war. He concluded by relating some statistics showing the effects of alcohol in producing crime, saying, "I have only to remark that alcohol in any of its forms may be a good medicine, but it is a bad diet, and that its action as a poison is visible among all ranks of society."

An interesting case bearing on the history of vegetable cutaneous parasites occurred the other day in a delicate-looking girl of 19, who had tinea circinata of the neck. It was complicated by something else: so I sent her to Mr. Malcolm Morris, a rising dermatologist, for further investigation. He found that eighteen months previous to this time she had nursed a child who had ringworm of the scalp, and that she had noticed a small red spot the size of a sixpence on the side of the neck. This spot gradually spread, and as it spread it healed and disappeared in the centre. After this other spots showed themselves in various parts of the neck and arms, each growing larger, as the first had done, by spreading round the circumference and healing internally. On examination, Mr. Morris found several well-defined and raised erythematous rings of tinea circinata. An interesting feature in these rings was their almost uniformly symmetrical position. For instance, three were situated on each side of the neck, two in front of each shoulder, one in each axilla, and one in front of each elbow-joint. Besides these there were one or two larger patches on the front of the chest. While removing some of the cuticle from one of the rings for the purpose of examination under

the microscope, he observed that the skin in the area of the ringworm and also on the front of the chest was not normal. In fact, it was covered with a patch of irregular outline of tinea versicolor,—or chloasma, as it is often called. This was a new and interesting fact in the clinical history of vegetable parasitic diseases of the skin: so, to be quite certain of the diagnosis, he examined the scales removed from several parts of the surface, after carefully preparing them in liquor potassæ, under a No. 8 Hartnack. The characteristic grouping of the spores peculiar to chloasma was readily seen; but it was with difficulty that he found the mycelium to verify the diagnosis of ringworm, and then only after long washing in ether and absolute alcohol. The chief point of interest about this case was that one fungus, the microsporon furfur, could flourish on the soil which had been abandoned by the other fungus, the tricophyton. Out of this case arise several questions of great interest to dermatologists. Mr. Morris asks, are they the same fungus in a different state of development? Some observers have recorded the fact that ringworm can produce fevers, while Jonathan Hutchinson has stated that ringworm in a child is capable of producing pityriasis versicolor in the adult. Or, says he, could it have been so in this case? Could the ringworm, which had been present for twelve months before the appearance of the chloasma, have given rise to this chloasma? He is inclined to think it could; but, before being more positive, more data are required on which to base conclusions. One thing is, however, patently apparent, and that is that on ground exhausted by one form of parasite another can still flourish: whether the parasites are of the same or of different races, however, it is not yet determined.

J. Milner Fothergill.

PROCEEDINGS OF SOCIETIES.

PATHOLOGICAL SOCIETY OF PHILADELPHIA.

Thursday Evening, February 14, 1878.

The President, Dr. H. Lenox Hodge, in the chair.

(Continued from page 406.)

Embolic pneumonia concurrent with disease of the heart. Presented by Dr. E. O. Shakespeare.

I am indebted to Dr. O'Neill, resident physician of the Philadelphia Hospital, for the following brief summary:

Charles H., aged 42 years, a tobacco-merchant; had always been addicted to the use of tobacco,—an inveterate smoker, and somewhat of a chewer; had enjoyed perfect health up to about three years ago, when he had a stroke of paralysis, the right side being affected. He entered the Philadelphia Hospital on the 29th of January, 1878. On auscultation there was heard a decided murmur with the first sound of the heart, at the apex and left side. There was a bounding pulsation and jerking pulse at the wrist. There was œdema of the lower extremities, extending far up the legs. He suffered with dyspnœa, so that the sitting posture was constantly retained. Articulation was slightly impaired.

Diagnosis.—Hypertrophy, with dilatation, and a button-hole mitral valve. Death was sudden, occurring in from five to eight minutes.

Post-mortem examination.—Appearance of the body.—Face and neck cyanosed; legs and feet swollen. On opening the thoracic and abdominal cavities, there was found a straw-colored serous effusion.

Heart.—Slightly dilated left auricle; hypertrophy of left ventricle, with constricted button-hole mitral valve. Ante-mortem clot in the left auricle. No clot in right heart.

Brain.—Softening towards the base of left hemisphere; an old cyst, the contents of which had become fluid, was found below floor of left ventricle, about an inch behind the anterior horn, and the same distance to left of median line.

Lungs.—Right lower lobe shows three or four infarctions, varying in size from that of a hazel-nut to that of a walnut. They extend to surface of pleura, are mainly wedge-shaped, and present, on section, a red, granular appearance, are solid, and have sharply-circumscribed borders. Around the border is a zone of intense hyperæmia. Only one shows any tendency to softening. There is a small similar infarction in the middle lobe; also one in the upper. At lower anterior edge of left upper lobe are two infarctions; none elsewhere in left lung. Pleural surface of all the infarctions is raised, and there are some bands of lymph here. In one of the infarcts a firm, solid, reddish clot was found occluding the lumen of the largest vessel in it. The lung-parenchyma elsewhere was somewhat hyperæmic, but otherwise normal. Liver, spleen, and kidneys, not abnormal.

Miliary tuberculosis with pleuro-pneumonia. Presented by Dr. E. O. Shakespeare.

Dr. Garrett, resident physician of the Philadelphia Hospital, furnished the following abstracts of the clinical history of the two succeeding cases:

Walter M., æt. four months and six days. Parents are healthy, and, as far as can be ascertained, have no syphilitic taint. The mother is 23, and this is her fourth child, each being by a different man. All her children are dead. The first died with symptoms of jaundice. The other two were taken with bronchitis, and died with the same symptoms, the mother says, as the case

before us. Baby Walter was a large, plump, and healthy child until this last attack of sickness. He was taken sick in the middle of December with a cold in the head, which passed into bronchitis, and then a few days later into a pleuro-pneumonia. During the last two or three weeks of his sickness he lost flesh, but not to a very marked degree. His symptoms were cough, which varied at times in severity; fever, which was severe at night, and almost entirely disappeared in the morning; pain, at times very severe, shown by a very peculiar distressed cry, great restlessness, a rolling of the head from side to side so that the hair was worn from the back of the head, a contraction of the eyebrows, a pulling and twisting of the fingers, etc.; and a tendency in the bowels to be loose. The last week was marked with occasional convulsions.

Treatment consisted in counter-irritation and warm moist applications to the chest; stimulating and sedative cough-mixtures; and supportive and anodyne measures.

Autopsy.—Brain.—Slight fulness of large vessels of pia mater, which nowhere showed decided milkiness or deposits of lymph. On vessels in fissura Sylvii, probably a half-dozen minute miliary tubercles. Otherwise appearance of encephalon and its membranes not abnormal.

Lungs.—Scattered through substance of all lobes of right lung are numerous minute, firm, gray nodules, presenting the appearance of miliary tubercles. Around these are small zones of lobular pneumonia. Intervening portions of lung more or less congested; slightly crepitant. Left upper lobe shows only a few of the above-named points. In left lower lobe they are more numerous than in last-named lobe, but not so abundant as in right lung. No decidedly cheesy points. The bronchial glands are enlarged, some of them red, others gray, but not softened. Bronchial and tracheal mucous membranes not much affected. Over whole left lung pleuritic membrane thickened and covered with thick layer of lymph.

Heart.—Normal. Liver and spleen show numerous disseminated small gray tubercle-like points. Mesenteric glands somewhat enlarged, but not softened. Some of them present gray surface on section. Kidneys normal.

Chronic catarrhal pneumonia. Presented by Dr. E. O. SHAKESPEARE.

Elizabeth J., æt. three months and twelve days. Was unable to obtain any antecedent family history. Mother died nine days after she was delivered, of traumatic peritonitis, consequent upon rupture of the uterus. She was known to have a cough, but it is not known whether she had phthisis. Child at birth was fat and healthy-looking, and weighed eight pounds. At the end of its first month it began to emaciate, and continued to do so until death. She had no cough until one month ago, when she had an attack of bronchitis. Since this attack she has had daily evening exacerbations of temperature. During the last week she had occasional attacks of epistaxis.

Autopsy.—Brain, heart, liver, spleen, intestines, kidneys, apparently normal.

Right Lung.—Upper lobe, apex, and posterior portion atelectatic; surface depressed, dark bluish-red; leathery consistence. Small portion of upper posterior part of lower lobe in same condition, as well as a few small spots at upper anterior part of middle lobe. Elsewhere over the surface of the lung were scattered here and there small gelatinous-looking spots, with their surface raised above the general level. With the exception of areas corresponding to the above-named points, surface of lung was smooth, light pinkish color; its substance was finely crepitant. Bronchial glands on this side slightly enlarged and red. Bronchial mucous membrane not visibly altered. No pleuritic adhesion on the side.

Left Lung.—Firm adhesions at apex. Both lobes solid, not much swollen. Upper more firm than lower. At apex of upper lobe is a large, irregular cavity as large as a walnut, partly filled with a gray grumous fluid. Thickened pleura forms outer wall of cavity. Here is the location of the adhesions. The surface of section of the upper lobe shows a firm, somewhat semi-transparent pinkish gray infiltration of parenchyma, scattered over with numerous yellowish cheesy points a little larger than a mustard-seed. Some of these points have softened centres. Cut surface of lower lobe shows same general appearance. Cheesy points not so numerous. Lymph-glands at root of this lung large, cheesy, and softened. Pus in smaller bronchi.

Thin sections of lungs from first case (*miliary tuberculosis*) show, under the microscope, small tubercles, mainly on small bronchi. Perivascular sheath of vessels but seldom involved. Around tubercles are areas of catarrhal pneumonia. Portions of lung between nodules show slight irritation of alveolar epithelium, and fulness of corresponding capillary nets.

Thin sections from the left lung of the second case (*chronic catarrhal pneumonia*), under the microscope, show the whole of the lung-substance in a condition of catarrhal pneumonia of the second stage. Some few of the cheesy nodules do not differ in appearance from those of the first case. Right lung was not examined microscopically.

THE Supreme Court of Alabama has decided that a doctor may be summoned as a witness and be made to give a medical opinion without compensation.—*Boston Medical and Surgical Journal.*

REVIEWS AND BOOK NOTICES.

CEREBRAL HYPERÆMIA—THE RESULT OF MENTAL STRAIN OR EMOTIONAL DISTURBANCE. By WM. A. HAMMOND, M.D. New York: G. P. Putnam's Sons, 1878.

Somebody has lately been antagonizing the time-honored line, "Satan finds some mischief still for idle hands to do," with considerable success, since the danger of the age seems to lie in too much instead of too little activity of mind and body. We are all presumably familiar with the condition cerebral anæmia and with its dangers. Just at present something new steps before the footlights, and cerebral hyperæmia stands revealed.

The brain overwrought seems fraught with deadly consequences other than those depending upon anæmia: indeed, after reading the elegantly-bound and clearly-printed monograph of Dr. Hammond, while we felt not the slightest symptoms of the condition he so vividly describes, still we could but look forward to any future mental work with fear. Who knows when his brain may be getting "hyperæmic"? The development of the symptoms may be quite sudden. And then to think of the treatment, which in two such cases (p. 103) did so much good,—"leeches to the inside of the nostril"! For once, happy is the victim of ozæna, whose nose the leeches utterly refuse.

For the last twelve years, or, in fact, ever since the publication of Dr. Hammond's monograph on wakefulness,—we draw our facts from the book before us,—very few observers have carried out the suggestive ideas then presented by him—one might almost say—for the first time; and, unfortunately,—the book is still our authority,—the few observations "made by others have been from wrong stand-points, and hence devoid of satisfactory therapeutical results." While this is greatly to be regretted, it is perhaps less so from the fact that Dr. Hammond has been induced, for this very reason, to again turn his eye and bend his mind upon this and kindred topics, with the result, among others, now before us. The author has entered upon that great field, so hazardous to cultivators, which may be termed creative medicine, and introduces to us hyperæmia of the brain, not temporary fulness or temporary congestion, but a disease, capable of sustained action; in other words, a distinct, permanent pathological condition of hyperæmia.

Of the tangible evidences of permanent over-distention of the cerebral vessels from prolonged mental and emotional excitement and other causes there exist few or none. Our author admits as much by calling it "an inference," strong as certainty to himself, but at present incapable of actual demonstration. We have followed the argument, or substitute for one, but it will hardly come to the reader with the force of a demonstration.

But, if only possessed of faith enough, with what sublime assurance can the anxious attendant rest his diagnosis upon this little book! In cases of cerebral anæmia and hyperæmia, two opposite conditions demanding urgently opposite lines of treatment, "errors of diagnosis [p. 65], when we bring to our aid the calorimeter of Lombard, or sufficiently delicate thermometers, . . . the ophthalmoscope and the aural speculum, can scarcely occur." It is well if the case be not urgent; else the overloaded practitioner, arriving hastily,—out of breath,—if happily he have not broken his apparatus, has no trivial task before him in applying the "sufficiently delicate thermometers," the ophthalmoscope, the aural speculum, and the calorimeter of Lombard. But then how overawing and final the diagnosis when at last it is reached!

But apart from instrumental assistance we have other aids. In anæmia of the brain (p. 65) the patient is almost constantly drowsy. "No diagnostic mark is of so great importance as this latter; and I regard it as of itself sufficient to determine the question." So that, after all, we may not need the calorimeter of Lombard.

The subject of the condition of the brain in sleep has been disputed for the last time. "Sleep is the result of a diminished amount of blood in the cerebral vessels." "Wakefulness is produced by an excessive amount of arterial blood in the brain" (p. 65). Hence wakefulness is a symptom of hyperæmia. True, when excessive in amount, in fact, congestion, "stupor may ensue;" but stupor, our author kindly adds, "is by no means sleep." Now, how do we know, and on whose authority is it settled once for all, that anæmia of the brain produces sleep? A foot-note refers us to our author's treatise on Diseases of the Nervous System, ed. vi.

Again, on p. 85, "The persistent insomnia always present, a condition now known to be due to cerebral hyperæmia." We were not sure at first how *we* came to know the above, but, on considering, remembered reading it in this book. The question may therefore be regarded as settled.

Page 89 opens up a new field of thought. In this age of the speaking phonograph, what may not be expected? Grant that we are all as a race becoming wearied and inheriting brain-exhaustion, why not then transact all business reclining? The ancients reclined at the amusements of life: let us recline at its work. As the natives of Laputa, with a partial glimpse of this great thought, went about with heads on one side and the finger pressed to the brow, so why may not the overworked advocate and the weary physician recline while giving opinions and arguing cases? Why may not the learned judges, without shadow of suspicion, lie on the bench, and the legal lights lie at the bar? Our best work, perhaps, has never been done. Is a certain poem

charming from its elegant diction and melodious rhyme? let the author lie down and reconsider his work, and perchance from a second-rate poet he may burst upon the world a Tennyson or a Swinburne. Or do these distinguished poets and the distinguished author now before us already lie down when composing?

But, as a serious suggestion, if wakefulness be a symptom of cerebral hyperæmia, and drowsiness and sleep of its opposite, is it not certain that a numerous class of cases spend their lives alternating between these two conditions? are not all medical men familiar with patients who cannot keep awake all day and cannot sleep at night? and if these cases are anæmia by day and hyperæmia by night, where are the author's fine-spun theories, and where is the entity of disease called cerebral hyperæmia? E. W. W.

GLEANINGS FROM EXCHANGES.

The Dangers of the Air from Sewers.—A very suggestive series of experiments has recently been performed by Prof. Frankland, with the object of ascertaining how far it is possible for solid or liquid particles to be scattered in the air of sewers as it passes along over the sewage. By using a solution of a salt of lithia mixed with water, and then agitating the mixture more than would take place under any circumstances in sewers, he was unable to detect in the contiguous air any trace of lithia even by the spectroscope. By generating gases in the fluid, however, in a manner similar to what occurs during putrefaction, the particles of lithia were carried into the air with these gases, and were easily ascertained to be present there. The bearing of these facts upon the importance of having all sewage discharged before it putrefies, and the danger of all cess-pools, whether in sewers or out of them, is quite manifest.—*Boston Medical and Surgical Journal*, March 7.

Hypertrophy, Dilatation, and Fatty Degeneration of the Heart, consequent upon Prolonged Muscular Exertion (*Canada Medical and Surgical Journal*, March, 1878).—Dr. Wm. Osler reports a case of hypertrophy of the heart occurring in a very muscular man, and analyzes a number of papers bearing upon this subject, in reference to which he comes to the following conclusions:

1. Sudden and violent exertion may cause rupture or laceration of the valves,—a very serious lesion, which often proves fatal within a short time.

2. The augmented resistance to the flow of blood during severe and prolonged muscular exertion increases the work of the heart, which, in response to the demand made upon it, enlarges. The blood-pressure in the aorta, abnormally high even during the diastole, is much increased during the systole of the powerful left ventricle, and the coats of the vessel yield, commonly at the arch, becoming pouched and atheromatous. Subsequently incompetency ensues, either from stretching of the aortic orifice or giving way of the valves.

3. In the functional disorder of the heart described by Da Costa, Myers, and others as common in young soldiers, and termed by the former "irritable heart," there is hypertrophy of the muscular walls of the organ, caused by over-work at drill and the constricting effects of the military accoutrements. This may in time be followed by valvular disease.

4. It appears from a number of recorded cases that overwork of the muscles may induce a primary dilatation and hypertrophy of the heart, which, without valve affection or arterial degeneration, may prove fatal with all the symptoms of chronic cardiac disease.

But how, it may be asked, is all this brought about? Severe muscular exertion affects the circulation in two ways: first, by interfering with respiration and the free passage of blood through the lungs; the right heart gets overloaded, the systemic veins full, and thus an obstacle is offered to the outflow of blood from the arteries; in consequence of which the left ventricle becomes dilated and must hypertrophy to overcome the increased resistance to the arterial flow.

Secondly, the effect of over-exertion may act in a much more direct manner. The experiments of Traube upon dogs have shown that during extensive muscular contraction the blood-pressure in the arteries is greatly increased, and the same may reasonably be inferred of men. The more laborious the work, and the more violent the contraction of the muscles, so much the greater difficulty has the blood in flowing through the systemic arteries. The arterial pressure is increased and the blood tends to accumulate in the aorta and the left ventricle. If the nutrition be maintained, no ill effect will follow from this, for the left ventricle hypertrophies and the balance is restored. That this state does exist is a well-attested fact, and Albutt speaking of this early condition of hypertrophy says "that he has found in a few autopsies of such men killed by accident or acute disease, that the ventricles, the left especially, are, like their bicipites, large and red," the heart weighing as much as sixteen ounces.

The Significance of the Cæcum.—Dr. Dureau (*Thèses de Paris*, 1877) discusses anew this subject by the light of comparative anatomy. The cæcum is rudimentary in man, carnivora, quadrumana, amphibia, insectivora, etc.; in rodents, pachyderms, and ruminants it is of capital importance. Among birds, it is similarly reduced to a simple tubercle among the rapacious birds (essentially carnivorous), and is prodigiously developed

among the gallinaceous and certain of the palmipedes. Among herbivorous animals and birds it appears to serve as a reservoir of elaboration and absorption of the food, its removal leading to extreme emaciation. In man and other carnivores it does not seem to be of any use: it exists, one might say, as an anatomical protest against vegetarianism. —*British Medical Journal*, February 23, 1878.

Viscum Album (Mistletoe) as an Oxytocic (*Louisville Medical News*, March 16, 1878).—Dr. W. H. Long has used mistletoe in the form of infusion, tincture, decoction, or, preferably, fluid extract, in many cases of menorrhagia and post-partum hemorrhage, with gratifying results. He believes it to be far superior to ergot—

1. Because it acts with more certainty and promptness.

2. Because, instead of producing a continuous or tonic contraction, as ergot does, it stimulates the uterus to contractions that are natural, with regular intervals of rest. Consequently it can be used in any stage of labor, and in primiparæ where ergot is not admissible.

3. It can always be procured fresh, does not deteriorate by keeping, and is easily prepared.

Rupture of the Uterus (*The Boston Medical and Surgical Journal*, March 7, 1878).—Dr. C. B. Nichols was summoned to attend in confinement a woman, æt. 51, and who had had nine children. Upon entering the room he found the patient *in articulo mortis*, and obtained the following history:

For the first twelve hours her labor-pains were rather light, and after trying the effect of walking and several positions to assist in the descent of the child, it was discovered that the cord had presented at the vulva. The previous attendant not deeming this of any advantage to the case, it was cut as short as possible, and each end was tied, after which the patient was allowed a few hours' sleep, and then exercise and position were again resorted to, with better success than before. This time a hand and arm presented themselves and demanded exit, but the attendant, preferring not to accept of such a small portion of a presumably good-sized child, made several ineffectual attempts to "shove" the offending arm back. Not being able to accomplish this, the arm and some portions of the vagina were amputated, the arm at the elbow, and the vagina in small, lacerated pieces. After this there was a hemorrhage sufficient to saturate the bedding and run down on to the floor. The husband, becoming anxious in regard to the safety of the mother, suggested a consultation, and Dr. Nichols was sent for. It being some sixteen miles, he did not arrive until the patient was nearly dead. Under these circumstances he refused to make any attempt at delivery, as the child had been dead for some time, and the mother was nearly so. The vagina was badly swollen, the patient was pulseless and cold, and a few moments closed the scene.

After waiting a proper length of time, he made a post-mortem examination. Upon opening the abdomen the back and nates of the child presented, and farther examination showed a rupture of the uterus from fundus to neck. There was a small quantity of blood in the pelvic cavity, and the walls of the vagina were lacerated in several places.

Vomiting during Gestation.—For the relief of this distressing complication, which is sometimes very obstinate, M. Labelski, a Polish physician, suggested a simple remedy at a late meeting of the Belgian Academy of Medicine. It consists in applying to the epigastric and corresponding dorsal regions a jet of ether spray from Dr. Richardson's irrigator. The douche is applied from three to five minutes at a time, four or five times a day, according to the severity of the symptom. The relief, we are informed, is immediate, and the ultimate success almost certain. —*Medical Examiner.*

Telephonic Auscultation.—A correspondent in a late issue of the *Student's Journal* has the following: "In my last letter I suggested that the telephone might be used for the purpose of diagnosing heart and lung diseases. I scarcely expected to be called upon just yet to announce that the idea has been carried out, but I observe that a correspondent of the *Medical Press and Circular* states that he has been able with the telephone to hear the sounds of the chest distinctly at a distance of thirty yards. The time may come when our fashionable physicians will have consulting-rooms in the large provincial towns, each having telephonic communication with his London consulting-room, where he will sit, examine, and prescribe for those patients who would find it inconvenient to come up to town to consult him. Of course patients would have to attend at the provincial consulting-room at such times as he would appoint. Bristol patients could attend at 10 o'clock A.M., Birmingham at 10.30, Oxford at 11, and so on. There would probably be some difficulty about the fees: they could not be transmitted by telephone. But these could be paid to an agent or secretary."—*Dublin Press and Circular.*

The Rain-Tree.—At a recent meeting of the Linnæan Society, Professor Thistleton Dyer described the "rain-tree" of Mogobamba, South America, under the name of *Pithecolobium saman*. The so-called "rain" is the fluid excreta of cicadas which feed on the juices of the foliage, and its dropping is therefore analogous to the "honey-dew" which sometimes drops from the leaves of lime-trees by the agency of aphides.

MISCELLANY.

THYMOL.—Thymol, a homologue of phenol, and extracted from the essential oil of thyme, of the American horse-radish, and of the Ptychotis ajowan, has been used as an antiseptic by German surgeons for more than two years, and is now being introduced into America. Discovered in 1709 by Caspar Neumann, it was first used to deodorize unhealthy wounds in 1868 by Bouillon and Baquet, of Lille. Under certain circumstances its antiseptic qualities are said to be from four to twenty-five times as powerful as those of carbolic acid. Thymol is crystalline, nearly colorless, has a pleasant odor and an aromatic, burning taste; it dissolves in twelve hundred parts of water, one part of rectified spirit, and one hundred and twenty parts of glycerin. Its action as a poison is only one-tenth that of carbolic acid, and it does not irritate the skin. These qualities, together with its great antiseptic power, indicate its substitution for carbolic acid in the Lister treatment of wounds. Professor Volkmann, of Halle, has used it in preference, and with great success. It has also been used for various skin diseases by Dr. R. Crocker, of London. For further details see *New Remedies* for April 16, and Mr. Gerrard's paper in the *Pharmaceutical Journal*. As an ointment, Crocker uses five to thirty grains of thymol to one ounce of vaseline; as a lotion, thymol, gr. v; spirit. rectif. et glycerin., āā ℥j; aquæ, q. s. ad ℥viij. Since one part of thymol will do as much antiseptic work as twenty-five parts of carbolic acid, the former is really the cheaper of the two, although in equal bulk it costs five times as much as the latter.—*Boston Medical and Surgical Journal.*

SOUL-MEDICINE.—"In allopathy the soul is nowhere; in homœopathy the state of the soul and mind is a *sine qua non*.

"Allopathy has no means of affecting the soul or mind, except those of a moral kind; whereas homœopathic medicines act upon the spirit or soul of man, and through it, and by means of it, and with a certainty which is as remarkable as it is true.

"By way of illustrating the power of homœopathic medicines over the mind and its affections, I shall give the following example. A favorite cat of my own had kittens. All were drowned but two; then one was given away, and ultimately the remaining one was given to a friend. The mother of the kittens became *inconsolable*, and went all over the house mourning her loss in unmistakable *tones of grief*, for five days and nights, 'making night hideous' with her cries. One globule of *Ignatia* cured her in a half an hour, as she never cried again."—*Skinner's Diseases of Women*, p. 27, Porter & Coates, Philadelphia.

THE NUTRITIVE VALUE OF MILK, as calculated from its elements, is very large, and its price is low as compared with meat. According to the Kensington Museum Catalogue, one pound of milk can produce at the maximum .8 ounce of dry muscle or flesh, and, if digested and oxidized in the body, is capable of producing a force equal to three hundred and ninety tons raised one foot high. One pound of lean beef is reckoned as a force-producer as nine hundred and ninety foot tons. Calculating the dry muscle as moist flesh, twenty-five pounds of milk are equal to four pounds of lean beef in nutritive value, or, in other words, one pound of beef is equal in nutritive value to 2.9 quarts of milk. Now, when milk is seven cents a quart, it is cheaper than beef at twenty-one cents a pound. We are led to these remarks by being reminded of the small consumption of milk by an ordinary population. From the best authority it is stated that but two-fifths of a pint a day are used in the asylums, schools, etc., in England; two-sevenths of a pint a day in one town, Sterlin; and but one-fifth of a pint a day in the English towns of Mansfield and Bedford. According to Dr. Edward Smith, the following table represents the consumption in the given place for each adult:

In England,	32 oz. weekly.
Scotland,	125 " "
Wales,	85 " "
Ireland,	135 " "

—*The Sanitarian.*

DR. HARRISON ALLEN has been elected Professor of the Institutes of Medicine in the University of Pennsylvania. It is proposed to make the chair purely physiological.

OFFICIAL LIST

OF CHANGES OF STATIONS AND DUTIES OF OFFICERS OF THE MEDICAL DEPARTMENT U. S. ARMY FROM MAY 19 TO JUNE 1, 1878.

Surgeons J. R. SMITH, B. E. FRYER, J. J. WOODWARD, and J. S. BILLINGS were designated to represent the Medical Department of the Army at the annual meeting of the American Medical Association, held in Buffalo, N.Y., on June 4, 1878. S. O. 109, A. G. O., May 21, 1878.

By direction of the Secretary of War, a Board, to consist of Surgeons E. P. VOLLUM, B. J. D. IRWIN, and Assistant-Surgeon H. LIPPINCOTT, is ordered to meet at the United States Military Academy, West Point, on June 11, to examine into the physical qualifications of the graduates and of the candidates for admission to the Academy. S. O. 116, A. G. O., May 29, 1878.

MIDDLETON, J. V. D., MAJOR AND SURGEON.—Relieved from duty at Fort Schuyler, N. Y. H., and assigned to duty as Post-Surgeon at Fort Wadsworth, N. Y. H. S. O. 86, Department of the East, May 17, 1878.

TREMAINE, W. S., CAPTAIN AND ASSISTANT-SURGEON.—Granted leave of absence for one month. S. O. 92, Department of the Missouri, May 21, 1878.

CALDWELL, D. G., CAPTAIN AND ASSISTANT-SURGEON.—Granted leave of absence for two months. S. O. 108, A. G. O., May 18, 1878.

CRONKHITE, H. M., CAPTAIN AND ASSISTANT-SURGEON.—Granted leave of absence for two months. S. O. 112, A. G. O., May 24, 1878.

YEOMANS, A. A., CAPTAIN AND ASSISTANT-SURGEON.—Upon abandonment of Fort Richardson, to move with detachment of Tenth Infantry to Fort Griffin, Texas, and there take post. S. O. 106, Department of Texas, May 21, 1878.

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"In complicated affections of the Stomach, such as *Inflammation, Gastralgia, Pyrosis,* etc., it may be combined with Subnitrate of Bismuth and opiates; and in Diarrhœa and Cholera Infantum, with astringents, both vegetable and mineral. I have given the article to several prominent physicians, who have used it with the happiest results, among whom I may mention Prof. E. WALLACE, of the Jefferson Medical College."

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In comparing the above analysis with that of the Extract of Malt of the German Pharmacopœia, as given by Hager, that has been so generally received by the profession, I find it to substantially agree with that article.

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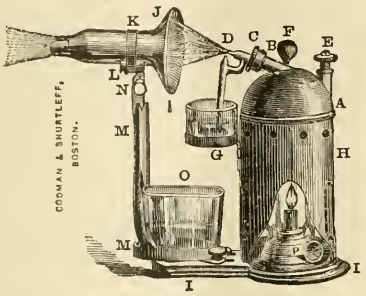

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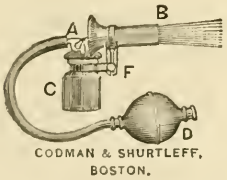

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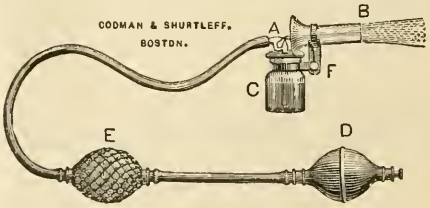

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Instruction is given by lectures, recitations, clinical teaching, and practical exercises, distributed throughout the academic year. The year begins September 26, 1878, and ends on the last Wednesday in June, 1879. It is divided into two equal terms, either of which is more than equivalent to the former "Winter Session," as regards the amount and character of the instruction. The course of instruction has been greatly enlarged, so as to extend over three years, and has been so arranged as to carry the student progressively and systematically from one subject to another in a just and natural order. In the subjects of anatomy, histology, chemistry, and pathological anatomy, laboratory work is largely substituted for, or added to, the usual methods of instruction.

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Students are divided into three classes, according to their time of study and proficiency. Students who began their professional studies elsewhere may be admitted to advanced standing; but all persons who apply for admission to the second or third year's class must pass an examination in the branches already pursued by the class to which they seek admission. The examinations are held in the following order:

At the end of the first year—Anatomy, Physiology, and General Chemistry.

End of second year—Medical Chemistry, Materia Medica, and Pathological Anatomy.

End of third year—Therapeutics, Obstetrics, Theory and Practice of Medicine, Clinical Medicine, Surgery, and Clinical Surgery.

Examinations are also held before the opening of the School, beginning September 23.

REQUIREMENTS FOR A DEGREE.—Every candidate must be twenty-one years of age; must have studied medicine three full years, have spent at least one continuous year at this School, have passed the required examinations, and have presented a thesis.

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THE REGULAR SESSION will begin on Wednesday, October 2, 1878, and end about the 1st of March, 1879.

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